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*September 24, 2004*

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APPLICATION NUMBER: 60/494,728  
FILING DATE: *August 13, 2003*  
RELATED PCT APPLICATION NUMBER: *PCT/US04/26132*

Certified by



Jon W Dudas

Acting Under Secretary of Commerce  
for Intellectual Property  
and Acting Director of the U.S.  
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**BAKER BOTTS LLP**Please type a plus sign (+) inside this box → Attorney Docket No. P35941-070483.0244  
Express Mail Label No. EV343637623US19704 U.S. PTO  
60/494728  
08/13/03**PROVISIONAL APPLICATION FOR PATENT COVER SHEET**

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Alan		Jolley		Gastonia, NC 28054 USA	
Sardar Imtiaz		Ahmed		Matthews, NC 28105 USA	
<input type="checkbox"/> Additional inventors are being named on the ____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
GAS SPRING ASSEMBLY WITH PRE-PAINT PROTECTIVE SLEEVE					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input checked="" type="checkbox"/> Customer Number		21003		→ Place Customer Number Bar Code Label here	
OR Type Customer Number here					
<input type="checkbox"/> Firm or Individual Name					
Address					
Address					
City		State		ZIP	
Country		Telephone		Fax	
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification		Number of Pages 5		<input type="checkbox"/> CD(s), Number	
<input checked="" type="checkbox"/> Drawing(s)		Number of Sheets 2		<input checked="" type="checkbox"/> Other (specify)	
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76		Claims 1 page Abstract 1 page			
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)	
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees				160	
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 02-4377					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,

SIGNATURE

TYPED or PRINTED NAME Richard G. Berkley

TELEPHONE 212-408-2554

Date: August 13, 2003

REGISTRATION NO.  
(if appropriate)  
Docket Number:

25,465

P35941-070483.024

**USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT**

# BAKER BOTTS LLP

## FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 160

### Complete if Known

Application Number TBA  
Filing Date TBA  
First Named Inventor Alan Jolley  
Examiner Name  
Art Unit  
Attorney Docket No. P35941-070483.0244

### METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number 02-4377  
Deposit Account Name Baker Botts LLP

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee required under 37CFR 1.16 and 1.17

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

### FEE CALCULATION

#### 1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 750	2001 375	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 520	2003 260	Plant filing fee	
1004 750	2004 375	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	160
SUBTOTAL (1)			(\$ 160

#### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims	- 20 = 0	X	0
Multiple Dependent Claims	- 3 = 0	X	0

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 84	2201 42	Independent claims in excess of 3
1203 280	2203 140	Multiple dependent claim, if not paid
1204 84	2204 42	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$ 0

\*\*or number previously paid, if greater; For Reissues, see above

### FEE CALCULATION (continued)

#### 3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 410	2252 205	Extension for reply within second month	
1253 930	2253 465	Extension for reply within third month	
1254 1,450	2254 725	Extension for reply within fourth month	
1255 1,970	2255 985	Extension for reply within fifth month	
1401 320	2401 160	Notice of Appeal	
1402 320	2402 160	Filing a brief in support of an appeal	
1403 280	2403 140	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,300	2453 650	Petition to revive - unintentional	
1501 1,300	2501 650	Utility issue fee (or reissue)	
1502 470	2502 235	Design issue fee	
1503 630	2503 315	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 750	2809 375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 750	2810 375	For each additional invention to be examined (37 CFR 1.129(b))	
1801 750	2801 375	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 0

### SUBMITTED BY

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Registration No. 25,465

(Complete if applicable)

Telephone 212-408-2554

Signature

*Richard G. Berkley*

Date August 13, 2003

PROVISIONAL PATENT APPLICATION

BAKER BOTTS L.L.P.

30 ROCKEFELLER PLAZA

NEW YORK, NEW YORK 10112

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TO ALL WHOM IT MAY CONCERN:

Be it known that WE, Alan Jolley and Sardar Imtiaz Ahmed, citizens of the United States, whose post office addresses are 1737 Farm Pond Court, Gastonia, NC 28054 and 641 Fence Post Lane, Matthews, NC 28105, respectively, have invented an improvement in

**GAS SPRING ASSEMBLY WITH  
PRE-PAINT PROTECTIVE SLEEVE**

of which the following is a

**PROVISIONAL PATENT APPLICATION SPECIFICATION**

**BACKGROUND OF THE INVENTION**

**Field of the Invention**

**[0001]** The present invention relates to a protective sleeve or covering for a gas spring and, more particularly, to a gas spring assembly including a protective sleeve or covering for protecting a gas spring against contamination during a painting process and for the subsequent post-processing removal from the gas spring.

**The Related Art**

**[0002]** Gas springs are widely used to assist in opening and closing the hinged deck lids, such as the hood, the hatchback, the trunk, and the like, of automotive vehicles. During the assembly of the vehicles, it is desirable to install the gas springs in their operating positions on the vehicle body, so that they are available to hold the lids in the open position when necessary during the

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manufacturing process. Certain processing steps, however, involve exposure of the vehicle body to materials and conditions that are detrimental to the gas springs. During pre-painting and painting processing steps, in particular, the vehicle body is typically immersed in or otherwise exposed to pre-treatment chemicals, primers, paint, etc., which, if coming into contact with the gas spring components, can adversely affect the subsequent operation of the gas springs during use of the vehicle.

[0003] Previous attempts to prevent the contamination of gas springs under the foregoing conditions have involved the use of replaceable paint-line gas springs, referred to as “paint slaves,” or prop rods, which are used only during the painting processes and are then replaced by the permanent, original equipment gas springs. After each use, such “paint slave” gas springs or prop rods must be removed from the vehicle body and transported to a different location for cleaning, re-use, or disposal in the event of failure. These additional handling and process steps are costly and time consuming.

**SUMMARY OF THE INVENTION**

[0004] It is an object of the invention to overcome the foregoing and other disadvantages of the prior art by providing a removable protective sleeve for a gas spring which enables a gas spring to be installed on a vehicle prior to the vehicle paint and pre-paint preparation processes and remain permanently on the vehicle as an original equipment gas spring, but with the sleeve being removable after the processing steps are completed. In accordance with the invention, the protective sleeve covers the entire gas spring, including the end fittings, and is made of a flexible, liquid-impermeable material that is capable of withstanding the high temperature of the

## PROVISIONAL PATENT APPLICATION

paint drying process and, at the same time, of being readily strippable from the gas spring after the painting process has been completed. Preferably, the sleeve material is a polypropylene or a polyamide.

[0005] The sleeve is preferably manufactured as a flat, elongated envelope sealed along both side edges and at one end, leaving the opposite end open. The sleeve is assembled over the gas spring by sliding the gas spring into the open end of the envelope, and thereafter securely closing the open sleeve end with a twist tie, clip, heat seal, or other suitable closure mechanism.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0006] For a more complete understanding of the present invention, and the advantages thereof, reference may be made to the following description of exemplary embodiments thereof, taken in conjunction with the accompanying drawings in which:

[0007] Figure 1 is a schematic view of an embodiment of a gas spring/protective sleeve assembly in accordance with the invention, showing the piston rod in an extended position;

[0008] Figure 2 is a longitudinal sectional view of the embodiment of Figure 1, showing the piston rod in a retracted position;

[0009] Figure 3 is a plan view of one embodiment of a protective sleeve in accordance with the invention;

[0010] Figure 4 is a side view of the protective sleeve of Figure 3.

[0011] Figure 5 is a plan view of another embodiment of a protective sleeve in accordance with the invention; and

## PROVISIONAL PATENT APPLICATION

[0012] Figure 6 is a side view of the embodiment of Figure 5.

**DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS**

[0013] As shown in Figure 1 and 2, a gas spring 10 of the type installed to a hinged lid in an automotive vehicle conventionally includes a cylinder 12, a piston rod 14, end fittings 16 and 18, a piston 20, and a main seal 22. In accordance with the invention, a protective sleeve 24 encloses the entire gas spring 10, including the end fittings 16 and 18. The sleeve 24 is assembled on the gas spring 10 prior to the gas spring being installed in its operating location on the vehicle body, e.g., between the vehicle body and a hinged lid such as a hood, hatchback, etc. It is intended that the gas spring 10 will remain on the vehicle for the functional life of the gas spring but that the sleeve 24 will be removed and discarded after the paint process has been completed. Thus, the sleeve 24 must protect the gas spring against visible marring and preserve its functionality during and after the paint process. The protective sleeve 24, therefore, preferably has the following characteristics: (a) will not be liquid permeable, (b) will be flexible, (c) will be functional after the paint process, and (d) will be removable and disposable after the paint process.

[0014] In accordance with the foregoing, the protective sleeve 24 preferably comprises a transparent polypropylene or polyamide material having a thickness of less than 0.05mm. To withstand the temperatures typically encountered in the drying stage of a vehicular paint process, the sleeve material should remain functional at 180°C for a period of 30 minutes.

[0015] Two embodiments of the protective sleeve 24a and 24b are shown in Figures 3 and 4 and Figures 5 and 6, respectively.

## PROVISIONAL PATENT APPLICATION

[0016] In the embodiment of Figure 3 and 4, the sleeve 24a is made of a polypropylene material and comprises a flat envelope sealed along both side edges 26a, 26b and one end 26c. At the other end 26d the envelope is open, and preferably has one wall 26e projecting past the open end 26d. The projecting wall portion 26e may be formed with an opening 28. During the assembly of the sleeve on the gas spring, the sleeve 24a may be suspended vertically by engaging a hook in the opening 28, with the gas spring then being inserted vertically downward into the sleeve.

[0017] Once the gas spring is fully inserted, the open end 26d of the envelope is tied off in a liquid-tight manner as indicated generally at 30 in Figure 1. Any suitable mechanism may be used to tie off the sleeve, including, for example, a twist tie, a clip, a heat seal, etc.

[0018] The sleeve embodiment 24b of Figures 5 and 6 is similar to that of Figures 3 and 4, but is made of a polyamide material and omits the projected wall portion 26e of that embodiment. The sleeve 24b may be held manually at its upper end 32d while the gas spring is inserted, or it may be mechanically gripped. Upon full insertion of the gas spring, the sleeve 24b is tied off at 30 as previously described.

[0019] The above-described embodiments are intended to be only exemplary and are susceptible of variations and modifications that are intended to be included within the scope of the invention.

PROVISIONAL PATENT APPLICATION

**WHAT IS CLAIMED IS:**

1. A gas spring assembly for permanent installation in a vehicle in advance of a painting process to which the vehicle is subjected, comprising:

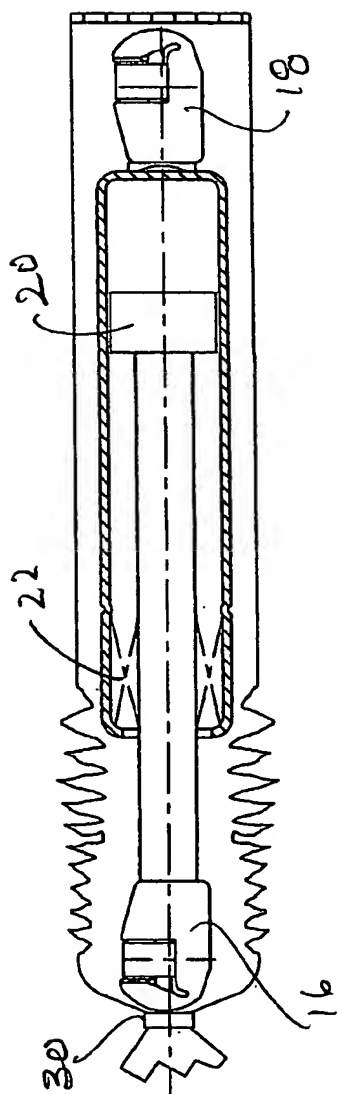
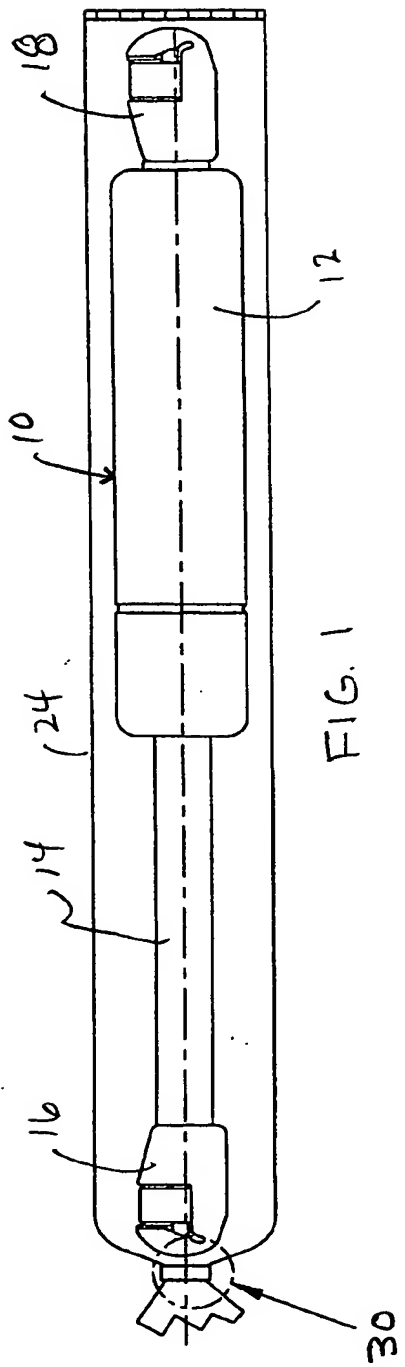
a gas spring including a cylinder having a closed end and an open end, a piston rod telescopingly received at one end within the open end of the cylinder and having a free end outside of the cylinder, and an end fitting mounted on each of the closed end of the cylinder and the free end of the piston rod; and

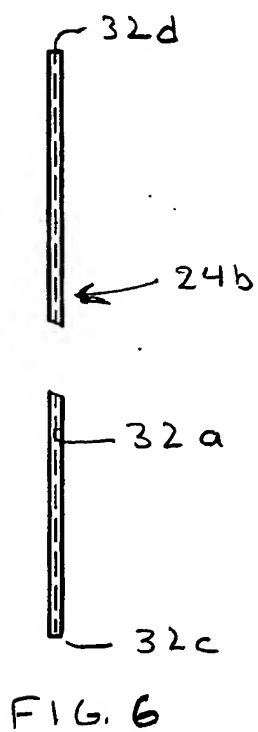
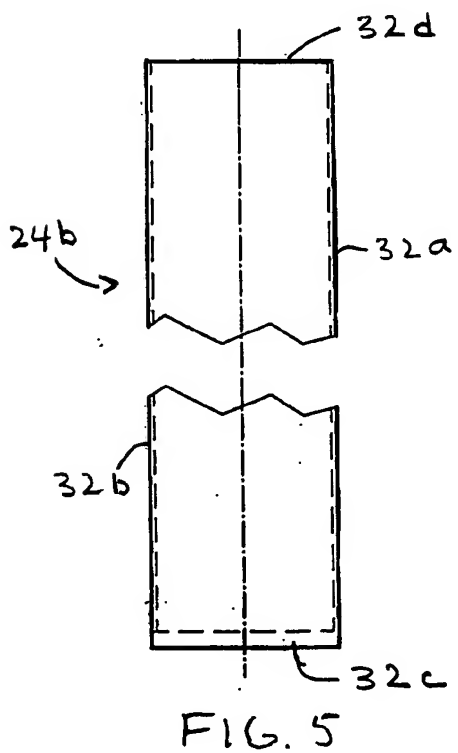
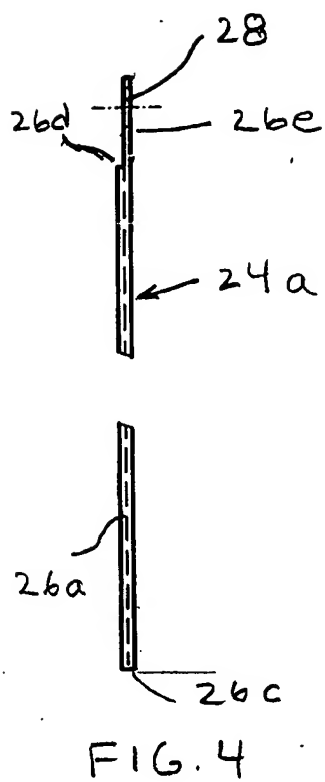
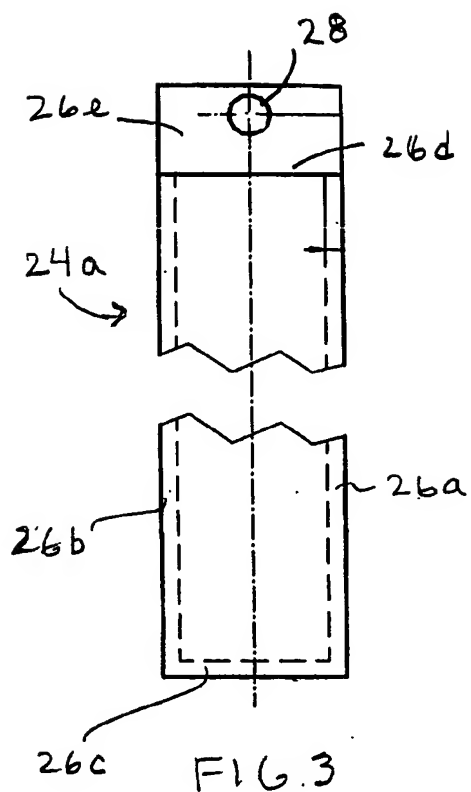
a removable protective sleeve enclosing the gas spring in its entirety, including the end fittings, and being closed in a liquid-tight manner at both ends thereof, said protective sleeve comprising a flexible, liquid-impermeable material capable of extending and contracting with telescopic movement of the piston rod relative to the cylinder and of being stripped from the gas spring following the completion of the painting process, leaving the gas spring as a permanent component of the vehicle.

PROVISIONAL PATENT APPLICATION

**ABSTRACT OF THE DISCLOSURE**

A gas spring assembly includes a gas spring enclosed within a flexible, liquid-impermeable protective sleeve. The sleeve protects the gas spring against contamination during painting and pre-paint processes, and is then removable to leave the gas spring as a permanent component of the installation subject to the painting.





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